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Panasonic Develops Technology for Evaluating Finger Safety with Toyota to Enable People and Machines to Coexist and Collaborate

- This technology contributes to the realization of a safe and secure society
- "Finger dummy" as an evaluation tool will be launched on October 15

Osaka, Japan - Panasonic Corporation, together with Toyota Motor Corporation, has developed a technology for evaluating finger safety to enable people and machines to coexist and collaborate safely with peace of mind. The two companies have commercialized, and will be launching on October 15, 2021 through Tanac Co., Ltd. a "Laceration Evaluation Finger Dummy" as an evaluation tool for preventing relatively minor finger injuries - a tool that is expected to be in high demand especially in the industrial world.



The use of robots is expanding in the industrial world due to labor shortages brought on by the declining birthrate and aging population. In particular, the utilization of collaborative robots that are expected to improve productivity and share work spaces with people is expected to increase globally. Meanwhile, ensuring peace of mind and safety on the manufacturing floor where collaborative robots operate has become the most important issue, and there have been calls for ways to prevent the relatively minor injuries to fingers that people are particularly prone to suffer.



View of manufacturing site where people and machines coexist and collaborate

Panasonic and Toyota started the joint development of this finger safety evaluation technology in 2018 with the aim of contributing to security and safety on the manufacturing floor. Panasonic has a technology for evaluating bodily safety that it has developed based on verification experiments performed on pig skin which is said to be similar to human skin. Since 2005, the company has been utilizing a proprietary tool for evaluating the safety of its own products, such as its "Hasamanize Mechanism" for preventing fingers from getting trapped in folding doors and autonomous transport robots. Based on Panasonic's technology, and building on Toyota's knowledge and experience of manufacturing operations, the companies have developed a finger dummy as a tool for predicting potential finger laceration injuries when working with collaborative robots, and for easily verifying, improving and validating safety conditions on the manufacturing floor.

The finger dummy consists of a core rod portion that corresponds to the human bone and a soft material that corresponds to the skin (finger dummy portion) covering the core rod. The soft material which simulates the skin is a proprietary material with a resistance against lacerations (loads that produce lacerations) that is approximately the same as that of real human skin. By inserting the part covered with the soft material between machine surfaces, etc., a potential injury can be represented visually based on the degree of damage to the soft material, and this enables users to predict and evaluate the risk of minor finger injuries. In addition, the product can be used repeatedly by replacing the soft material.

[Overview of Laceration Evaluation Finger Dummy]

Product name	Laceration Evaluation Finger Dummy
Shape and configuration	16.0 mm × 13.4 mm × 150 mm (reference value at the time of assembly) Soft material finger dummy part, stainless steel core rod part, and ABS resin handle part
Launch date	October 15, 2021
Sold by	Tanac Co., Ltd. https://global.k-tanac.co.jp/

[Shape and construction]



- [1] Finger dummy: Soft material x 1
- [2] Handle: ABS resin x 1
- [3] Core rod: Stainless steel x 1

The Laceration Evaluation Finger Dummy to be provided and its configuration

In order for the wide adoption of this evaluation tool, the two companies have outsourced the manufacture and sale of the finger dummies to Tanac, and have set up a system to make the evaluation tool available for purchase by everyone. Going forward, Panasonic and Toyota will continue to contribute to the realization of a society in which people and machines can coexist and collaborate safely with peace of mind.

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About Panasonic

Panasonic Corporation is a global leader developing innovative technologies and solutions for wide-ranging applications in the consumer electronics, housing, automotive, and B2B sectors. The company, which celebrated its 100th anniversary in 2018, operates 522 subsidiaries and 69 associated companies worldwide and reported consolidated net sales of 6,698.8 billion yen for the year ended March 31, 2021. Committed to pursuing new value through collaborative innovation, the company uses its technologies to create a better life and a better world for customers. Learn more about Panasonic: <https://www.panasonic.com/global>.

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